Hearing Loss in the Navy Special Warfare and Diving Communities

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NEHC
Workshop
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History and Reasons for Study:

- **Limited anecdotal (clinical) evidence of HL risk, intuitive appreciation, but no published studies**
- **SEAL community self-contained with respect to healthcare and medical surveillance. Who to approach?**
- **DOEHRS-HC no help (qualification, not an SDOC)**
- **Summer 2001, MC Officer reports NEHC after duty with SEALs, concurred study merit, proposed up their COC.**
- **CAPT Butler, Senior Medical within NSW community, requested NEHC conduct preliminary study to determine if expanded**

Methods:

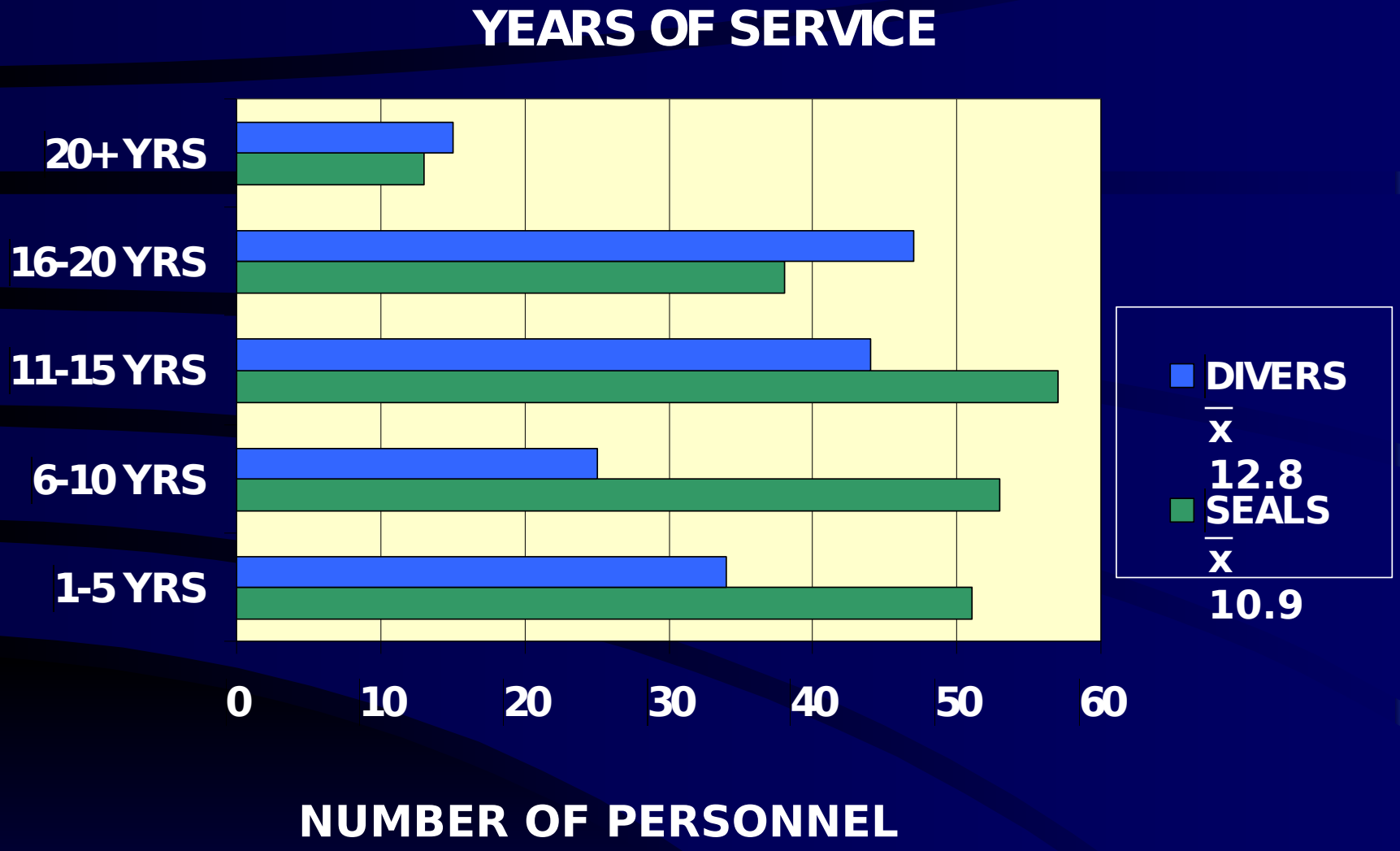
- Examined medical records of 212 SEALs from Little Creek Amphibious Base, and 165 area divers
- Record thresholds Basic Underwater Demolition School (BUDS) p.e. / Dive qual p.e. & last audio
  - Record pay grade, Birth date
  - Record number of DD2216s on file
- Compare data to Navy at-large* and other pops.

*“US Navy and Marine Corps Hearing Conservation Program, 1995-1999: Mean Hearing

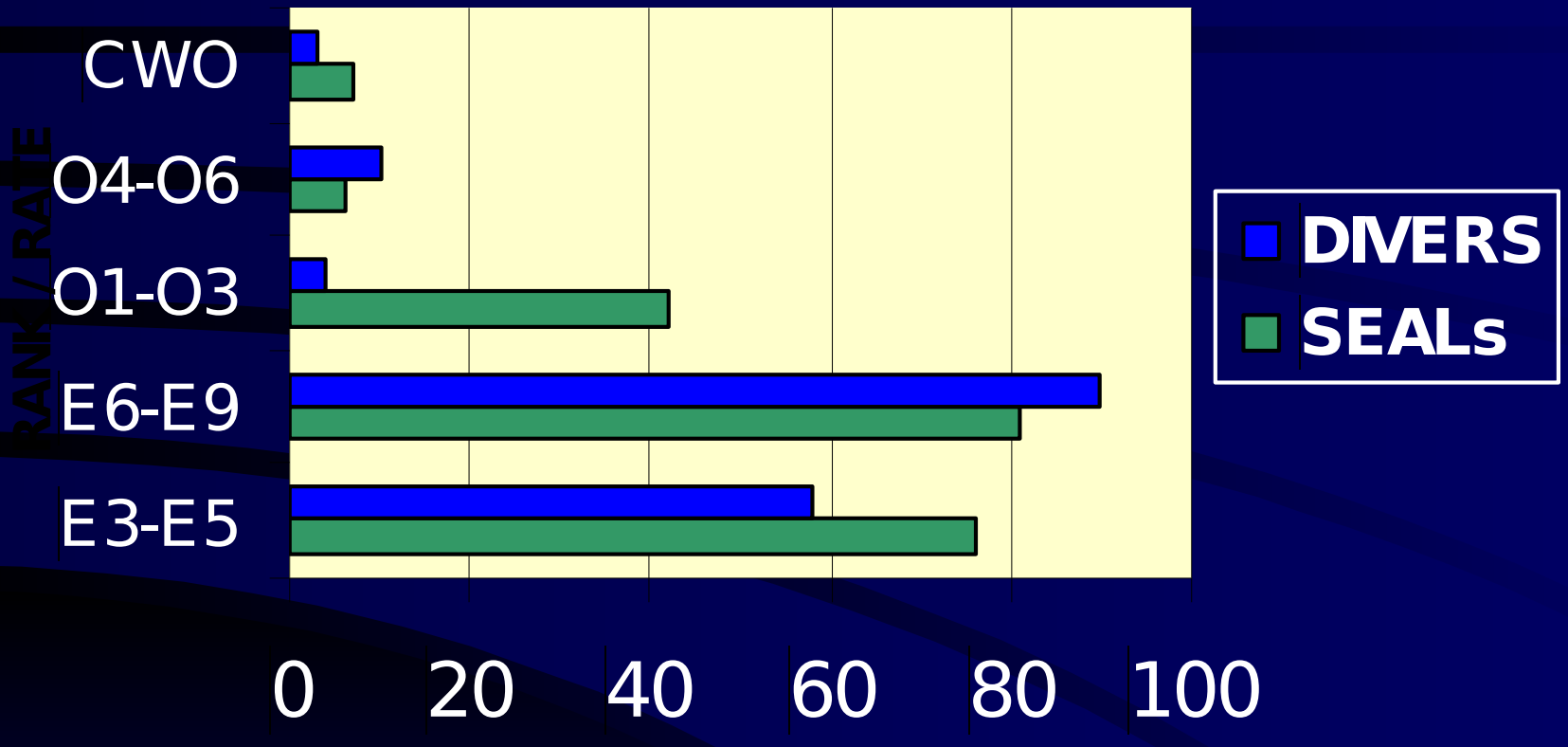
Analysis:

Used age-adjusted Mantel Haenzel Weighted Odds Ratio to compare with 1995-1999 ALNAV data (n=51,643)

- **4000 Hz thresholds worse than 20 dB**
- **4000 Hz thresholds worse than 40dB**
- **Any 500-3000 Hz thresh than 20dB**


YEARS OF SERVICE
20+ YRS
16-20 YRS
11-15 YRS
6-10 YRS
1-5 YRS
0
10
20
30
40
50
60
NUMBER OF PERSONNEL
DIVERS
x̄
12.8
SEALS
x̄
10.9

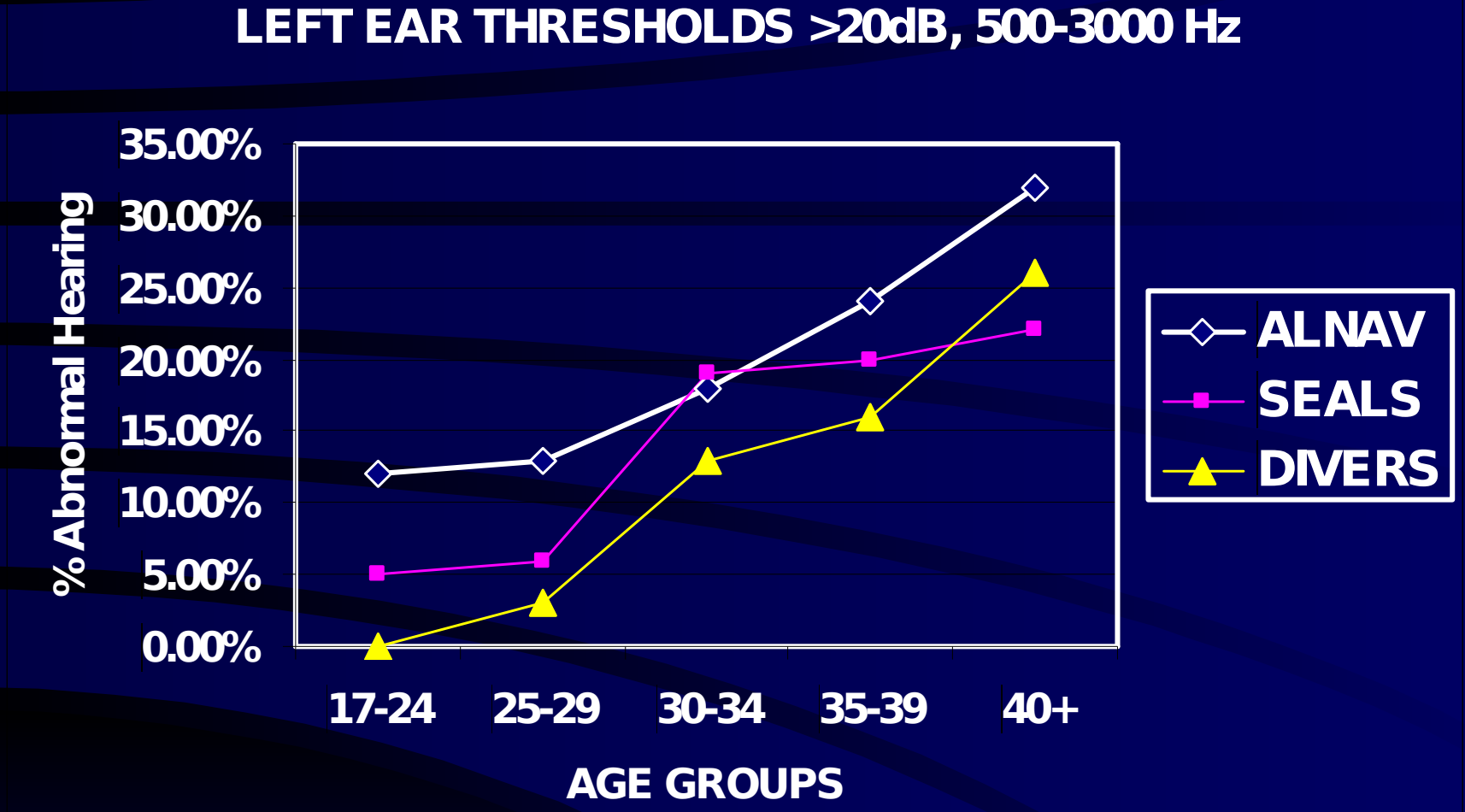
RANK STRUCTURE



- **Rather few abnormal audios, even in personnel with 15-20 yrs duty!**
- **Divers annual p.e., must maintain entry-level threshold minimums (waivers possible)**
- **SEALs get 5-yr physicals, DD2216s rare**
  - **SEALs monitored every 4.4 years**
  - **Divers monitored every 2.3 yrs**

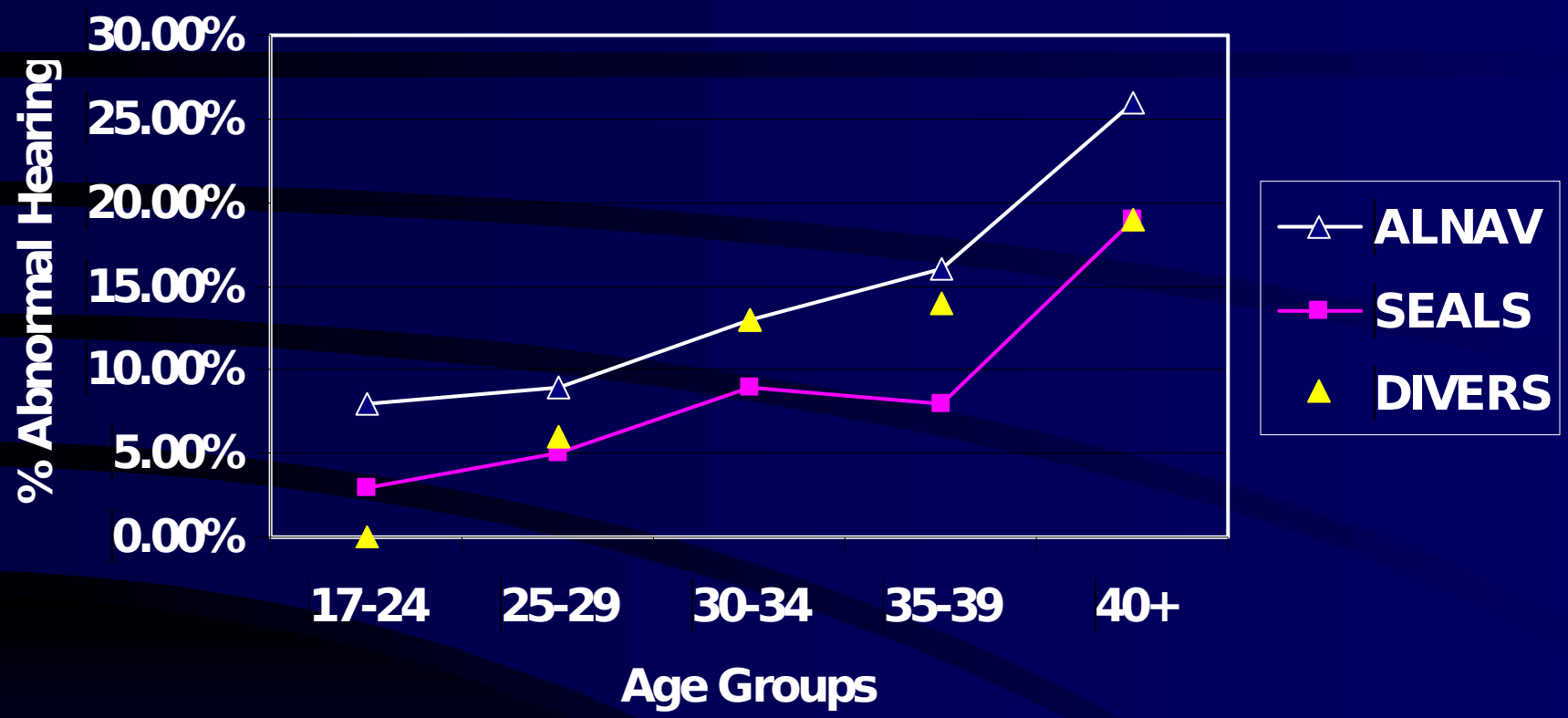
Statistically Significant Results

- **SEALs significantly LESS at risk to have any right ear threshold 500-3KHz >20dB (p=0.022)**
- **Divers significantly LESS at risk to have any left ear threshold 500-3KHz >20dB (p=0.047)**
- **SEALs significantly MORE at risk to have a 4KHz threshold >40dB (p = 0.0043 left, p = 0.000089 right)**
- **SEALs significantly MORE at risk to have a RE 4KHz threshold >20dB (p = 0.00012)**



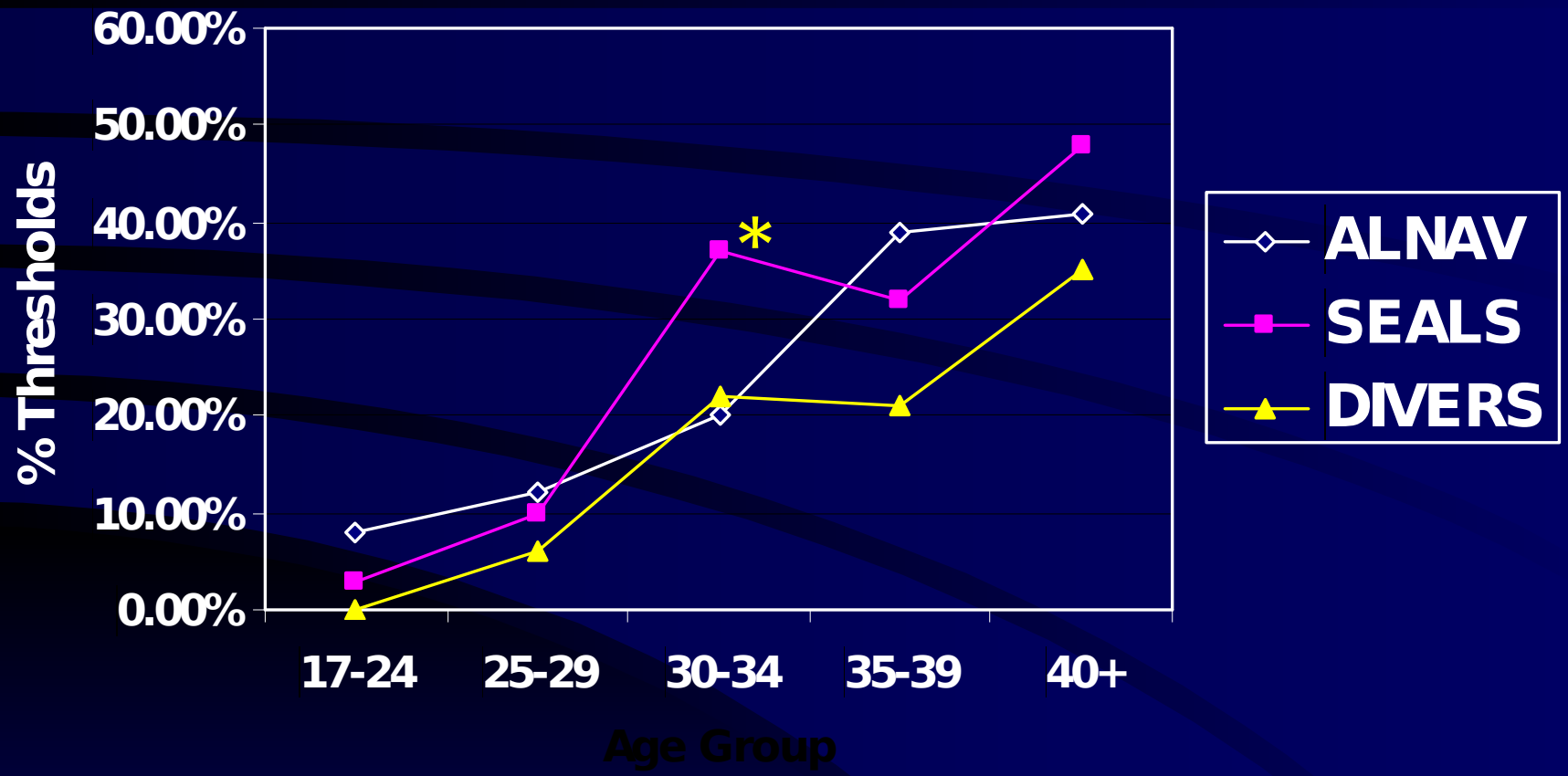
Divers significantly better hearing (p = .047)

RIGHT EAR THRESHOLDS >20dB, 500-3000 Hz

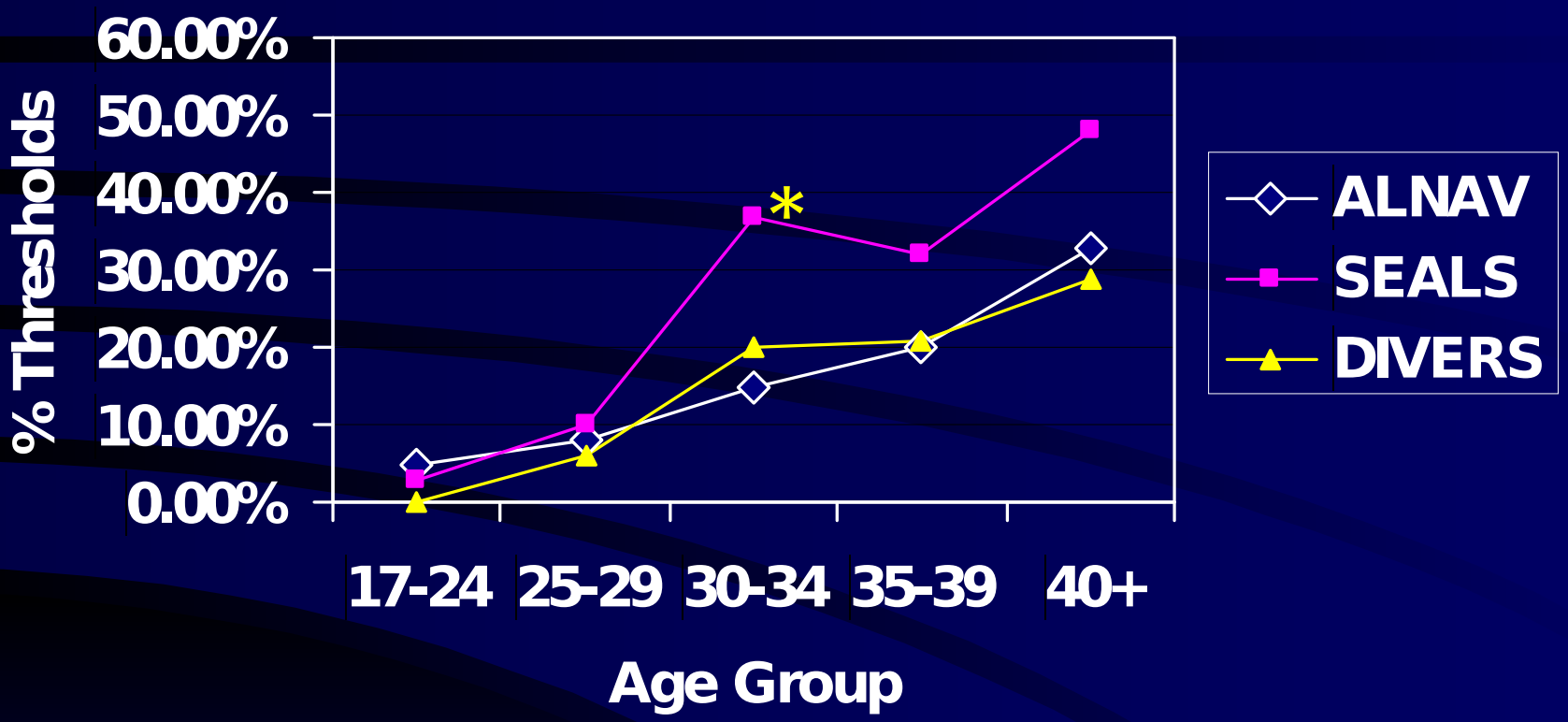


SEALs significantly better hearing (p = .022)

LE 4000 Hz Thresholds >20dB

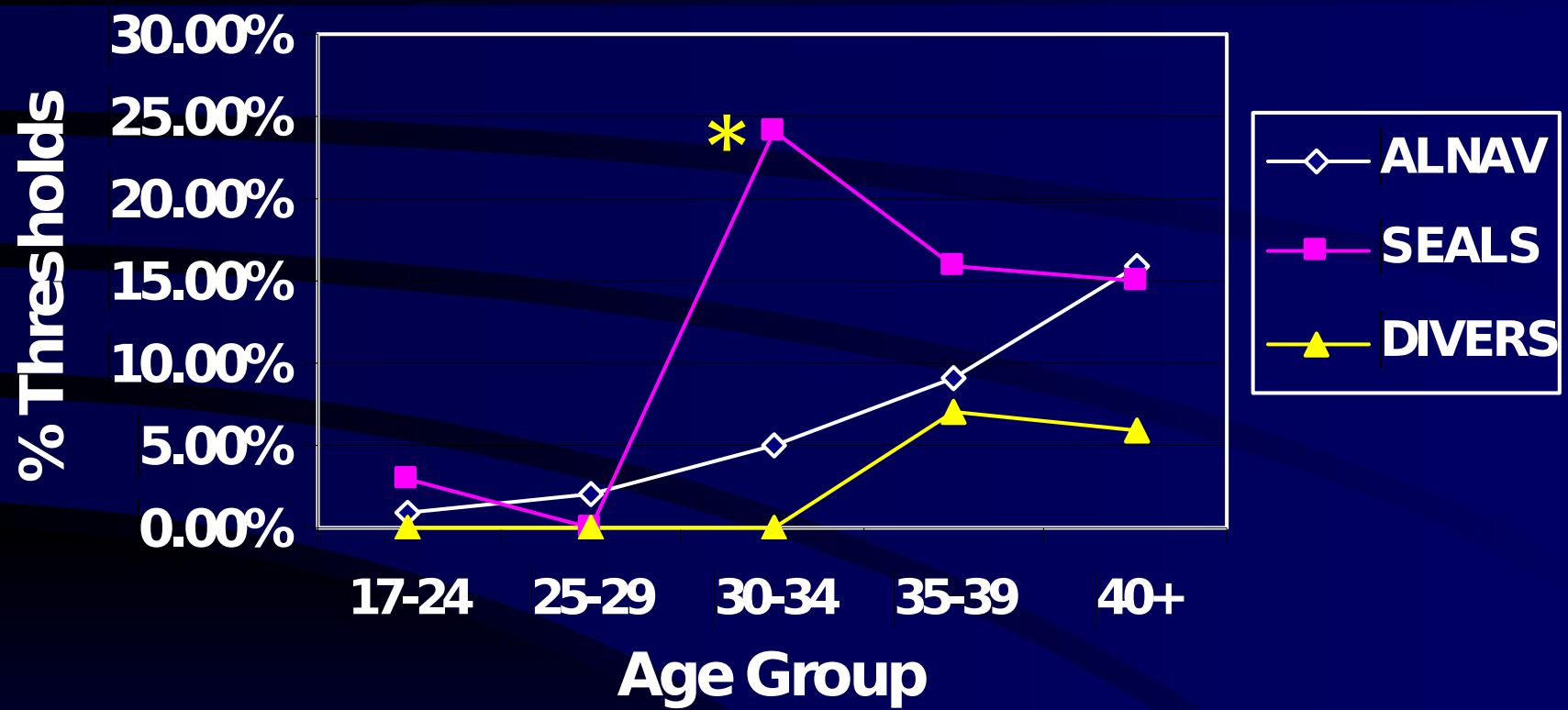


***Results significant 30-34 y.o. SEALS (p = 0)**



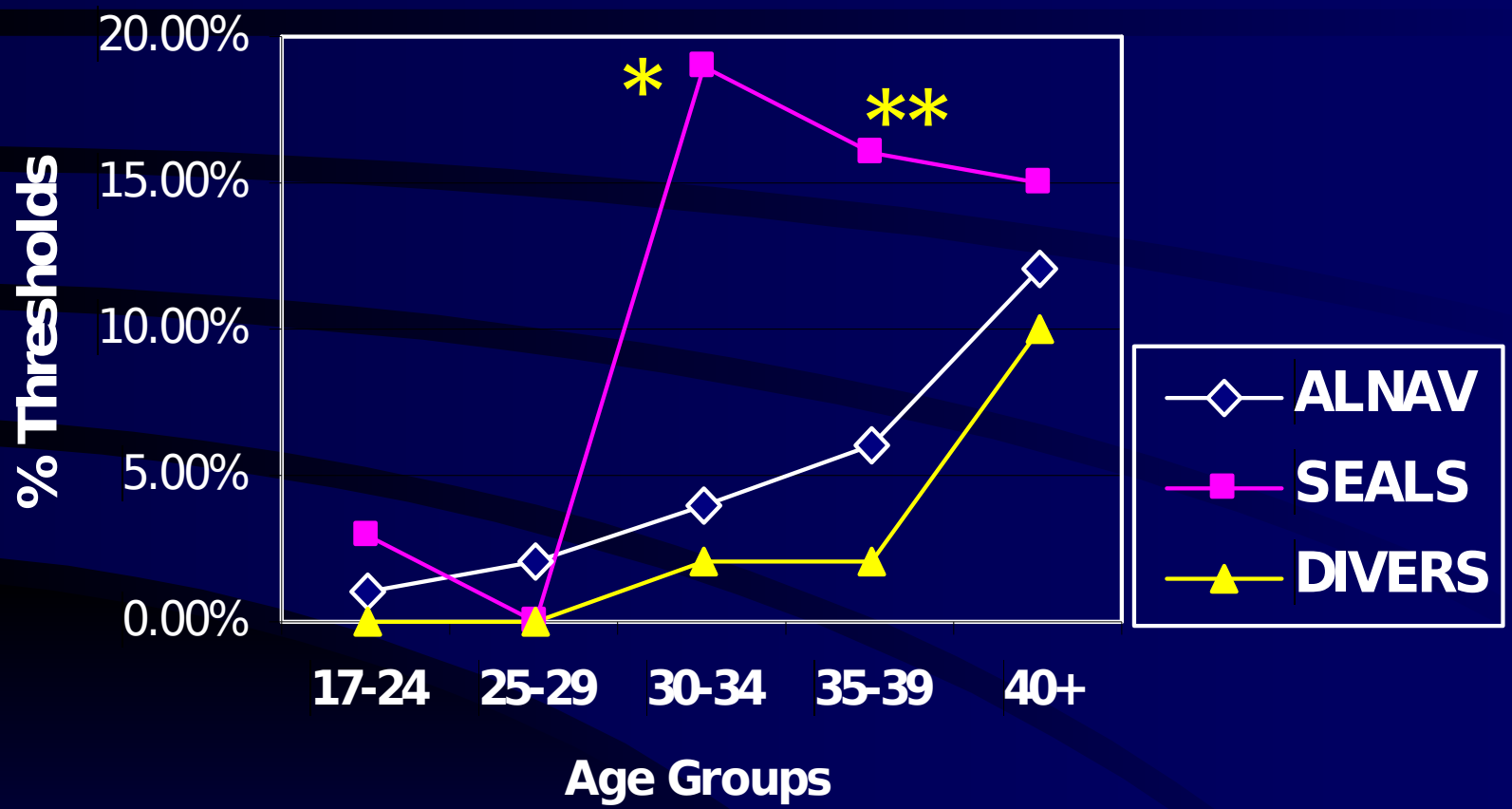
*Significant (p = 0)

LE 4000 Hz Thresholds >40



*Significant (p = 0)

RE 4000 Hz Thresholds >40dB



* Significant (p = 0)

** p = .06

CONCLUSIONS:

1. There is significantly increased risk of 4K Hz threshold shift in the SEAL community compared to the Navy at large.
2. Advanced hearing loss (abnormal hearing in speech range) occurs less frequently in Divers, and insignificantly different in SEALS compared to the Navy at large.

Questions?